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Enabling Practices for Information Systems Adoption in the Complex Context of Greek E-Government

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ENABLING PRACTICES FOR INFORMATION SYSTEMS ADOPTION IN THE COMPLEX CONTEXT OF GREEK E-GOVERNMENT

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Abstract

The Greek administrative context is characterized by a centralized and bureaucratic culture and is heavily influenced by the ongoing financial crisis. E-government is under development and remains greatly fragmented while adoption is low and resistance by public agencies and citizens is often high. Against this background, this paper provides an in-depth study of four nation-wide e-government projects recently adopted in Greece that were successfully implemented and widely adopted by their intended stakeholders. The study of these projects reveals common enabling factors. Based on our findings, we propose a framework that links together three enabling practices for the adoption of e-government projects, namely, top-down pressures, agency ownership and user engagement. We discuss how these are interrelated and their implications for improving e-government adoption 'against the odds'.

Keywords: e-government, public administration, Greece, information systems adoption.

1 Introduction

E-government, that is using ICT in the public sector, contributes to the modernization of a state, by providing services of high quality and value to citizens and other stakeholders, as well as by reducing costs and the time required to complete tasks. It is also associated with increased efficiency in the use of the available material and human resources, increased transparency, reduced corruption and mismanagement, and boosted confidence in public services (Gil-Garcia and Pardo, 2005; Gouscos et al., 2007; Guijarro, 2007; Moon, 2002).

Despite pressures to achieve these benefits in the public administration in Greece, development and adoption of e-government remains partial and problematic. Studying either particular sectors such as health or public administration in general, only a few IT projects had been developed at a national level and some others locally (e.g. Angelidis et al., 2010; Bogdanos et al., 2008) till recently. A more in-depth study of the current situation reveals a mixed picture with lots of contradictions (Spinellis et al.,

2018). While multiple inefficiencies and problems are detected, about both e-government and public administration in general, there are now a series of initiatives and positive steps that have been taken in recent years, particularly during those of the financial crisis that started in 2009. Ironically, some positive outcomes have been achieved due to the pressure the crisis has put on public administration. In several cases, the developments were triggered by interventions led by the institutions (European Union, International Monetary Fund) monitoring the reforms undertaken by the Greek governments of recent years. The significance of external pressures is also highlighted in earlier work by Spanou and Sotiropoulos (2011) on administrative reforms in Greece over time; they conclude that, while only a few economic and managerial reforms have been implemented in the country, since mid-1990s there has been some progress in this direction (still delayed, less daring and less visible), partly because of the external pressures that the country's membership in the EU generates. At times, these external pressures were also coupled with internal modernizing forces, which struggled to gain the required power to apply their vision (Spanou and Sotiropoulos, 2011).

Nevertheless, many of the IT-driven reform initiatives are isolated from governmental policy, revealing a clear discontinuity (e.g. Bamidis et al., 2006; Spinellis et al, 2018). Such a lack of continuity, though, traditionally appears not only in IT implementations but also in administration reforms in the country (Spanou and Sotiropoulos, 2011). Policies implemented by one government are often abolished by the following one or even by the same administration (Economou, 2010; Spanou 1996), also due to the dominating rationale of party conflict and the resulting bureaucracy (Sotiropoulos, 2006). This situation can be largely explained by historical and institutionalist perspectives (Spanou and Sotiropoulos, 2011).

From a historical perspective, Greece can be classified as a late-development country. The socio-political transformations which led Western Europe to the development of industrial capitalism and contributed to its political and cultural institutions, triggered lots of tensions as they were regarded as an imported phenomenon (Mouzelis, 1978). This applies both to the citizens and the civil servants, too. Formality, uniformity of practice (neglecting contextual nuances) and centralization prevail, greatly due to the Napoleonic model on which the Greek state has been developed (Spanou, 2008). Subsequently, a defensive reluctance towards organizational changes is in presence (Spanou, 2001) when attempting to modernize the state's operation. Civil servants have limited expertise beyond the formalistic issues whereas top administrative officials play only a secondary role (Sotiropoulos, 2007). This situation becomes even more complex taking into account the ongoing financial and cultural crisis in the country. As such, e-government is greatly influenced by this unique context of increased diversity, fragmentation and discontinuity.

Clearly, e-government is not easy to implement. The failure rate of e-government projects had been reported to reach even 85% (Heeks, 2003). It has not accomplished the potential it is associated with (Anthopoulos et al., 2006; Ferro and Sorrentino, 2010; Korteland and Bekkers, 2007) because of lots of challenges that emerge. Among others, these include IT-related complexities, limited providers' capacity and users' uptake, and digital divide (Aladwani, 2013; Baumgarten and Chui, 2009; Helbig et al., 2005; United Nations, 2012). The success of e-government projects greatly depends on policy setting, well before engaging with technical implementation. The reasons behind such a success (or failure) can often be traced to social, cultural and political factors (Boonstra and Van Offenbeek, 2011; Constantinides and Barrett, 2006; Greenhalgh et al., 2009; Lapointe and Rivard, 2005).

Policies are complicated by their nature and they both influence and are influenced by IT projects. As a way to promote change, they constitute strategic resources, which are open to a constant interpretation (Brown, 2004). As policymakers often do not share a common vision (e.g., Klecun-Dabrowska and Cornford, 2000; Morrison et al., 2013), or do not even have one, the setting becomes more blurred. Actors and other stakeholders involved in such projects have an impact on the formulation of policies, both during planning and also in the implementation stage (Motion and Leitch, 2009; Mueller et al., 2004). As such, stakeholders play an instrumental role in IT project success (Boonstra et al., 2008). However, this can also result in a policy-implementation gap (Greenhalgh and Stones, 2010;

Pope et al., 2006; Spanou and Sotiropoulos, 2011). Large IT projects, as those of e-government usually are, are associated with a number of different stakeholders who hold diverse values, beliefs and interests. This diversity may result, in turn, into tensions in a number of dilemmas that emerge, as various objectives and requirements need to get aligned (Boonstra et al., 2017). Conversely, depending on the varying views stakeholders may hold and their dynamics (Orlikowski, 1992; Robey et al., 2002), IT can be implemented in different ways, contributing to the aforementioned gap.

This paper looks deeper in the e-government status in Greece with an aim to unveil enablers leading to good practice in such a highly complex context. The remainder of this paper is organized as follows: First, we briefly explore tension awareness and duality perspective use in IT projects and argue for its usefulness in analysing significant aspects of e-government. The research methodology adopted is then presented, followed by an analysis of four recent nationwide IT projects in Greece; despite the difficulties and problems that emerged, these projects proved to be key good practices of e-government in the country, each in different aspects. Building on our analysis of these projects, we present a framework of three interlinked dimensions of enablers, common across these IT projects, and discuss how these can be operationalized in a public domain setting.

2 Tension awareness and duality in IT projects

Policy makers and project managers face multiple dilemmas and are often called to choose the most favourable option over a less attractive alternative. In order to further understand this situation, the concepts of tension awareness and duality perspective seem promising. In this paper, we build on the duality perspective Boonstra et al. (2017) explored. They applied the tension awareness and dualistic approach in the management of organizational change proposed by Smith and Graetz (2011) in a large technology project, so as to emphasize how dual tensions may materialize through stakeholder voices, either directly or indirectly. The dynamics among different and often contradicting or incompatible elements (Van de Ven and Poole, 2005) strongly affect the progress of a change. A duality perspective helps in a practical way to recognize and understand these dynamics (Barke et al., 2008; Seo et al., 2004) and simplify the dilemmas faced. However, it is not always necessary to choose only an option over another, or in other words adopt only one end of a dilemma as they are not always mutually exclusive. In fact, not only they complement each other, but also applying a clear preference only to one pole of the dilemma and ignore the other can be harmful and puts additional difficulties in their enactment (Seo et al., 2004). As Boonstra et al. (2017, p.20) highlight, "the apparently opposing elements should, rather, be seen as complementary and coexisting, and the tension that this coexistence creates needs to be managed in order for projects to be successful." Such a tension, however, needs to be addressed and acted as it emerges. They also refer to five duality characteristics of dilemmas in change setting that Smith and Graetz (2011) propose: simultaneity (i.e., both ends can be present), relationality (i.e. interdependent dilemmas), minimal threshold (i.e., each end must be present at least to some extent so as to benefit from its advantages), dynamism (i.e., the emerging tensions from the coexistence of the dilemma ends have a mobilizing force) and improvisation (i.e., it is needed to find balance in this complicated situation).

3 Research Methodology

This study follows a qualitative, interpretive approach and is part of a larger research project to study e-governance in Greece and offer directions for future policy making in this area. The aim of the present paper is to better understand the prevailing context, identifying good practices when they occur within it. A series of in-depth, semi-structured interviews were conducted with stakeholders from different disciplines and levels (public sector executives, civil servants in contact points with citizens, IT professionals and consultant outside public sector, academics and citizens), before focusing on good practices and what seems to work better in the field. The interviews covered a review of the prevailing context of e-government in Greece, the current status of key IT projects, an overview of the environ-

ment of each setting, the role and interests of some stakeholders, the problems that may have emerged and how they have been addressed. Each interview had a slightly different agenda to account for the role and knowledgeability of each interviewee. In addition, participant observation was also used, with one author observing the design and use of some selected IT projects.

For the purposes of this paper we identified from the corpus of our empirical material specific instances of successful implementation and good practice. We deliberately defined successful implementation loosely. We selected projects that had been completed and adopted by their intended audience. Four such IT projects are presented; these all have a strong symbolic value and have been implemented during the last years, while the country is facing a financial crisis and is bound by a Memorandum of Understanding (MoU) with the EU and IMF. These projects share some common attributes, but they also have many differences in the deployment approach followed, the involved organizations, the problems that emerged, etc. Whereas they are all commonly regarded as good practice, their assessment is not consistently positive across all possible criteria. For instance, end users may complain about the ease of use of a system, but the latter is still considered successful as its implementation met its objectives, has been adopted and showcased some important success factors (e.g. cooperation of multiple organizations, citizens' acceptance, etc.). Such projects have become a point of reference within the public administration.

We began our study open to different interpretations about what may constitute an enabler for a successful project implementation, so as to better benefit from what issues and possible approaches seem more appropriate as we analysed our data. As it can be easily explained by the complex context of e-government, no single approach seems to apply to every setting, but also within the same setting at different implementation levels or among organizations/ stakeholders, or over time. Therefore, it is crucial to discern some key factors that seem to better address the emerging challenges and lead to the operation of e-government services that can fulfil their promises, and to sustainable changes. Within this complex context, a number of decisions must be taken as the design and implementation of an IT project is deployed, that is throughout the whole life cycle of a project. These are related to both predefined ones, such as the objectives of each project, the approach followed or the parties involved, and others that arise across different levels and at different times, including the way to address different views, interests, requirements and thus subsequent tensions.

4 Four cases of systems-in-use

The four selected IT projects concern the development of 1) an electronic application for the payment of fees to the state (e-paravolo); 2) an application for the online submission of assets for civil servants and other liable citizens; 3) a platform for public electronic consultation; and 4) an electronic application where all the administrative acts are posted online to foster transparency in the operation of the public sector. They were all implemented after 2010, when the country agreed on the MoU with the EU and IMF. For each information system, emphasis is given on the process and level of development, the involved actors, the problems that emerged during both its implementation and use, and the future steps or objectives.

4.1 Project 1: e-paravolo

The e-paravolo application enables electronic payments (fees) to the State. It is connected to the DIAS inter-banking system, accepts payments by citizens and transfers these revenues to the corresponding public organization or institution through the General Accounting Office. All the payments but those deposited in ELTA (Hellenic Posts) are attributed within the same day - in the case of ELTA this process takes place during the following day as the communication is not online and includes transferring data files. The application supports web banking, phone banking and all the types of cards (credit, debit, prepaid). This is a Level 5 application (personalization), according to the integration levels for e-government services as defined by the United Nations (2002), i.e., a complete, integrated e-service is

provided. The access to the system is open to: all citizens and businesses who have to pay a fee; all public services as publishers of the bill and recipients of revenue; the banking system and DIAS through which payments are made.

The problems that emerged and were dealt with during the design and development phase concerned the cooperation with the agencies for the recording of all sorts of publicly issued bills. Complexity and multiplicity in the applying laws result in ignorance of the processes and laws by competent departments and employees, who know from experience what to do in their everyday life. As a result, there was an initial refusal to cooperate in the face of improper and incomplete registration. At first, 15 institution bodies with 500 different categories of fees joined the system; 45 bodies with 3,500 categories of fees are now included.

The fact that the application of the electronic system provided comprehensive information on the different categories of fees that exist and are issued by the public sector is of particular interest. These fees have been defined at different times, with different laws, by different bodies and for different special needs, and there was no overall picture of this information. What is also important is that there is now the possibility of consolidation because these different categories of fees actually differ very little in their monetary value and purpose. Therefore, they could be consolidated into homogeneous categories and the payment system about fees could get simplified.

For the design and development of the application, General Secretary of Information Systems (GSIS) of the Finance Ministry, public sector bodies receiving revenue through fees and DIAS comprised the involved entities. The initiative for the development of electronic application was taken by GSIS. As a basis for the design, a study that had been previously developed by a private bank was used. The development was done in-house, by a team of 4 GSIS programmers, with the assistance of a team of 4-5 employees who undertook the operational planning, process analysis, inventory mapping, organization, coordination, as well as the communication and cooperation of all the involved parties. Thereafter, the application is continuously developed and evolves following agile methodology, with constant feedback and integration of remarks of new or modified requirements and the addition of new cases. The application is run by GSIS.

Problems occurred mainly at the initial stage of implementation and during the training of the employees of the agencies, because of their initial refusal to use the system, preferring the daily routine of work. However, a strong interest and "demand" can be observed at the next stage, as the employees receive training and use the new system, gaining confidence to use it and recognizing the ease it has to offer to their daily work.

Another interesting issue concerns the cooperation among the involved parties/ actors. At first it clearly constituted the main problematic and negative area of the design and implementation phases of the project. Nevertheless, it soon turned out to be positive with the development of trust and cooperation. In order this to be achieved and manage to instigate initial cooperation, it was necessary to impose the new system through a political agreement at a high (ministerial) level and intervention at the top management level of institution bodies.

From the technical development side of the system, for the first semester of the system's operation, the service was not provided online. As such, the complete cycle of completion required 1-2 days. The pilot run of the system began in September 2013, its production began 4 months later, and the service became available online from September 2014. ATM and POS payment possibilities have been completed and tested in a test environment.

This capability, which is ready in technical terms, provides the opportunity for the system to be further used by citizens and businesses for other types of payments to the State, too. For instance, new application fields could include the on-site payment of fines issued by the Traffic Police and the payment of fines by companies that are based abroad. For the latter, indeed, there is already cooperation with the Securities and Exchange Commission. In addition, the opportunity for electronic payment of court sentences (i.e. fines) will enable these penalties to be paid on-the-spot electronically. Therefore, the physical presence of tax officials in the courts will not be required any longer for the collection of such

fines, which so far takes place only on working days hours and days. Thus if the payment is not made, citizens are sadly kept in custody until the next working day (e.g. even throughout the weekend) even when they can pay the penalty imposed on them so as to get released. Furthermore, another use of the application includes the collection of shipping charges or transit fees. Such an opportunity is not only feasible, but highly desired, too. Even though these fees were institutionalized by law in 2012, they have not been collected until today by the Ministry of Finance: the latter is unable to design or apply a collection procedure in the traditional way, which requires the physical presence of a tax official in each port of the country. Bureaucratic reasons, though, prevent the use of this ready electronic application for the collection of these fees.

4.2 Project 2: Asset Submission System ("Pothen Esches")

The information system "Pothen Esches" supports the consolidation of the procedures for submitting, processing and checking the annual statements of assets of all public administration audit institutions. In particular, it provides the following capabilities: creating a debit record for automatic detection of unsubscribed statements, submitting online a statement for all those who are liable, keeping an online database of statements, automatic cross-checking of statements and tracking of the annual changes in the debtors' assets. At the same time, it facilitates the audit process through risk analysis techniques, provides faster processing of complaints over the Internet, and ensures the security, confidentiality and availability of statements only to law enforcement officers, agents and employees. According to its main operators, this new integrated information system has already replaced the handwritten procedures for submitting, processing and checking asset statements, by providing digital services to all liable citizens and institutional bodies. The upgrading of these services is aimed at uniformity and timeless asset control. It is therefore important in combating corruption and increasing transparency in public administration.

During the implementation, several difficulties emerged in its design and development stages. Several of them occurred due to the conflicting demands of stakeholders, difficulties in decision-making, and a lack of cooperation between the numerous actors in charge of using the system: General Inspector of Public Administration, Office for Anti-Money Laundering and Terrorist Financing and Audit of Asset Statements, Parliament of Greece, Greek Police, Coast Guard, General Secretary of Anti-Corruption. Nevertheless, implementing a common project that meets the needs of different actors is a remarkable and unique example to be imitated.

The legal institutionalization of requirements and the required functionality (by law and joint ministerial decisions) has made planning and implementation even more difficult since it has deprived the project of valuable flexibility. The same lack of flexibility has hampered improvement interventions (e.g. linking bonds with the unique ISIN code) after the completion of implementation. Moreover, as it is claimed, the system could have been supported by greater willingness to cooperate regarding interoperability with the (then) General Secretariat for Public Revenues that holds many of the required data (E1, E9, identification codes). Accordingly, the involvement of the Data Protection Authority could be more constructive. Last but not least, some liable users caused further problems with legal interference; such problems should not be overlooked, as it is a common practice in various projects in the public sector. Additionally, a series of well-known problems of the Public Administration made the project implementation even harder: "attitude of considering each unit as a personal property, information islets, poorly understood personal data protection, rights of civil servants to be taken as granted, lack of motivation, indifference, laziness, fear, irresponsibility". The cumbersome and bureaucracy of the public administration regarding the quick conclusion of contracts of maintenance and adaptation to legislation put additional difficulties in the daily operation of the system.

It is worth highlighting that in addition to the abovementioned problems of the public administration, many implementation difficulties have been encountered due to the lack of redesigning of the procedures for submitting lists and statements, and checking the declarations as they result from the existing legislation. Simply put, what is easily done in submitting "on paper" is difficult to get transferred to

the electronic system "as it is". Well-structured procedures are required with clarity, completeness, and parametric approach.

4.3 Project 3: Open Gov

Open Gov is a platform for public electronic consultation. It is based on a framework of political principles such as transparency, consultation, accountability and decentralization, with the aim to create good practices to be established as a way of governance. As the competent Ministry claims, the needs of citizens for information, meritocracy and participation in the decision-making process are at the heart of this initiative.

Even though Open Gov is perceived as a positive reform and good practice in political terms, the implementation of the system can be seen as highly problematic. The first action plan was drawn up for the period 2012-2014 but the expected results were not met. The second action plan was drawn up for the period 2014-2016; 15 of the 70 commitments it contained were implemented. For the current period 2016-2018, the third action plan was drawn up and implemented. One of the commitments of the current Open Gov Action Plan, which is the responsibility of the Ministry of Finance through the General Secretariat for Public Property and the GSIS, concerns the creation and operation of an e-auction platform for the granting of public property to private individuals or businesses for exploitation (e.g. concession of seaside to leisure businesses, coffee shops, etc.).

The problems that emerged in the implementation of the action plan include: Reactions and resistance to the imposition of open data and procedures (such as local interests in municipalities, or municipalities themselves for the implementation of e-auction on seaside areas); fear to take up the responsibility and bureaucracy within the public administration; resistance and reaction to decision-making on the implementation of the planned actions; ignorance, which results in incorrect evaluation of the priorities by the public administration.

Given these problems, the few positive results to date have been achieved by autonomous islets with personal commitment, participation and different administrative culture, alongside and besides the administrative hierarchy. Another way to overcome the presented problems and insufficiencies that has been attempted at a central level refers to the adoption of a "creating demand" method, through the increased awareness and participation of the groups who expect to benefit from the results of the action.

4.4 Project 4: Diavgeia

Diavgeia (meaning transparency in Greek) is the information system where all the administrative acts are publicly posted. For its operation, Responsible Operational Teams were designated in each institutional body, with the responsibility of incorporating the procedures for the posting of its administrative acts. Subsequently, a posting jurisdiction has been allocated to the corresponding secretarial support of each unit that develops such an act.

This is an integrated application and constitutes an information service, which helps to enhance the transparency of the public administration. Access to this service is provided to citizens, businesses and all other government departments. Each act is identified by a unique number (Online Posting Number - OPN), so they can be reused by virtually eliminating the "exact copy" handwriting process for posted administrative acts.

During the development phase, no problems of recording or redefining operational procedures emerged, as a new process was created. The project was implemented by the Information Society SA (public company) on behalf of the Ministry of Administrative Reform.

In more detail, the initiative for the project came from that Ministry and the Prime Minister's Office. The implementation was entrusted to the Information Society SA, with a joint working group with the agency. The project was developed in two stages. A pilot project was first implemented in-house by a

team of 5 developers and then a study was prepared and the specifications for the overall project were specified, before the project being awarded to a contractor following an open call for tender. The overall project was funded by the Operational Program "Administrative Reform" of the NSRF 2007-2013. The aforementioned ministry is responsible for the maintenance, which has to be done at the expense of the ordinary budget. This results in inadequate maintenance, given the country's financial crisis.

Problems have arisen during the mandatory application of public posting of administrative acts, due to the resistance of many actors to the disclosure of the acts they issue. Indeed, many of them delayed or requested an exemption from the posting obligation by invoking the confidentiality of the documents. This process has resulted in the rationalization and redefinition of the posting obligation. As a general rule, though, the government legislated that no administrative act is considered to be in effect unless it is first published on Diavgeia. This was done in order to overcome the strong opposition and resistance towards the project by public servants and institutional bodies and thus achieve universal use.

Business planning and the study of future needs were not complete, leading to two major problems. At the operational level, as the posted document is also the certified one by the OPN, it means that all historical data must be kept computerized and constantly available. In turn, a technical problem also emerges. High capacity (infrastructure, servers, storage) is required to store such a large amount of data. This volume is increasing at a very high rate, taking into account the administrative documents that are created every day. Also, no backup infrastructure was planned. Finally, it is considered imperative to transfer and host the system in G-Cloud, that is the governmental cloud infrastructure, and to design a process of "use and archive" for the administrative acts with time history (versions over time), which should be decided depending on the use of historical data.

5 Discussion

The four cases presented briefly describe some emerging issues and challenges in the implementation of IT projects, which are considered a good practice, and the efforts made to address them. Multiple problems were faced at different stages and levels, highlighting the complexity of the Greek public administration and the respective e-government context. As it is evident, even though they all have a positive impact on the e-government reality in the country and provide some valuable lessons for future implementations, their success does not come without problems. Additionally, the overall positive assessment does not cover all aspects of an e-government initiative or satisfy all criteria of what constitutes a successful project. For instance, the end users of Pothen Esches often complain about its lack of ease of use; nevertheless, its implementation and the cooperation that was achieved among so many stakeholders is remarkable, especially given the bad tradition of coordination and integration in the Greek public administration.

In view of open dualities, the policy makers and project managers had to make a series of decisions, both technical and political ones. They range from strategic or political ones, such as the approach to be taken, to others at the operational level, such as what roles are assigned to the involved organizations. For each emerging dilemma, both poles come with their benefits and disadvantages. As a consequence, a stakeholder may favor pole A, whereas another may promote pole B, depending on their viewpoints, but also on their interests. Within the same organization or unit, different views are apparent, too. This causes further tensions, therefore in addition to the decision itself, the management of subsequent dissatisfaction and reaction is also crucial.

Analyzing the preferences made, we discern some common elements in these good practices of e-government implementation. Taking into consideration what has worked, the problems faced and the results, these elements greatly contributed to the successful implementation and constituted critical success factors in the complex context of Greek e-government. The dualities and the preferred options, however, do not come in isolation. They are interlinked and should be viewed in combination. The same applies to the subsequent results across different dimensions (e.g. reactions that cause new tensions, and so on), as well. We argue that three main poles can make a difference and play an instru-

mental role in the adoption and implementation of IT projects in the public sector; top-down pressures, agency ownership and user engagement.

5.1 Top-down pressures

A common element of almost all the presented cases concern the great pressure that was put towards the implementation of each project. Despite the problems that emerged, the resistance due to either the prevailing culture, the different views or the faced difficulties, the tight budget and the other aforementioned insufficiencies of public administration and IT projects, such as limited expertise and skills, the main objective did not fade out. In fact, a remarkable continuity in the desired strategic goals and implementation choices is evident, as opposed to the tradition of the public administration in Greece. It is worth mentioning that at that time, the political and governmental circle has shrunk, with 6 different governments taking the power since 2010, without counting cabinet reshuffles. Thus, the political will remained constant and this commitment greatly resulted in the project completion. The political commitment came from the strong symbolic value of the projects (e.g., Diavgeia, Open Gov) to promote values such as transparency and democratization. Such values are considered a significant issue in the Greek context traditionally (Spanou and Sotiropoulos, 2011), and become even more important at times of crisis and transition. The political commitment and persistence came also as a result of strong external pressures by the EU and IMF.

A consequence of the top-down pressures is that most of the IT projects are implemented through a top-down approach. This is in line with the traditional centralization of the Greek State (Spanou, 2008). Nevertheless, this should be viewed under a narrow definition, as we emphasize the political dimension rather than technical development. As such, a similar approach can be applied at different levels. Besides, lots of good practices can be detected in the Greek context that have been developed bottom-up or at local level (Spinellis et al. 2018; Vasilakis and Pouloudi, 2017). What is important is the commitment of the administration in each context. In cases the support of top levels of hierarchy (Dong et al., 2009) is not sufficient, it can sometimes be expressed with a direct enforcement of the use (Chan et al., 2011) by administrative measures.

5.2 Agency ownership

While top-down pressures is an important element, agency ownership (Baumgarten and Chui, 2009; Lam, 2005; Luk, 2009) is also a prerequisite for a successful project completion. In this complex context where there are multiple stakeholders with their own interests and views (Fedorowicz et al., 2010; Lim et al., 2007; Tan and Pan, 2003; Tan et al., 2005), the management and coordination of a project need to be put under the responsibility of a single agency or person of authority. As a consequence, on the one hand, this agency has the power to implement what is needed, respond to emerging tensions and conflicting views, and take action to meet all the requirements. Top levels of hierarchy can also empower it in various ways in the same direction (Ngwenyama and Nørbjerg, 2010; Vasilakis and Pouloudi, 2017). Therefore, a third party can realize that the administration and the unit in charge to implement a project are on the same page, reducing emerging tensions to a significant extent.

On the other hand, this assignment also means that when a controversial decision has to be made or a problem occurs, the competent agency has the duty to take action. Thus, inertia or the phenomenon where anyone acts only within the limits of their strict work commitments without caring for tasks "outside their responsibility" can be eliminated. Particular emphasis should be given on the work ethos, culture and skills of the selected agency.

The agency in charge needs to have, in addition to the power to implement the project, the flexibility to move without strict constraints as far as development issues are concerned in order to deal with bureaucracy effectively. This was particularly apparent in the e-paravolo case. For instance, allocating effort-hours or insourcing can help manage several common problems and provide services of high value quickly.

Regarding project development, an incremental implementation approach seems to be effective. The development in stages can reduce time-to-market, which may reach 5 years in the Greek public sector (Spinellis et al., 2018), and also provide quick, small wins. The value of such wins is highlighted in the literature (Kotter, 1995; Reay et al., 2006; Vasilakis and Pouloudi, 2017) so as to gain trust and wider support for the sustainability and expansion of the project (Bannister and Connolly, 2011; Janowski, 2015). For example, e-paravolo and Diavgeia were first implemented in-house by a small number of developers so as to promote the value of the system, before a second, extended version was developed independently. E-paravolo has also already proven its potential and more application fields can follow. At the same time, Pothen Esches began its operation having lots of open issues in terms of user friendliness, which caused lots of complaints by end users. However, in this way usefulness prevailed over ease of use, which can be achieved with a subsequent version of the system.

We must clarify that by highlighting the value of stage development, we do not argue against radical changes. Rather, our focus is on small wins. The presented cases reveal that staged development can be compatible with crucial and radical reforms, too. For example, Diavgeia constitutes such a case, especially at the cultural level, while e-paravolo does so mainly in operational terms.

5.3 User engagement

A third pole that complements top-down pressures and agency ownership refers to user engagement. As it is already evident from the previous section, user acceptance and support (e.g. Hung et al., 2006; Kumar et al., 2007; Osman et al., 2014; Venkatesh et al., 2016) is critical in establishing a good practice. This refers to both civil servants and citizens, depending on the system under question.

In line with duality perspective, political commitment and agency ownership do not exclude instances of the alternative poles of related dilemmas, nor restrains the role of end users. A strong top-down pressure does not necessarily mean an authoritarian approach to development. Similarly, the assignment of ownership to an agency does not mean that the agency manages everything, or that the one who has the power "takes it all". On the contrary, when these conditions are in presence in a meaningful way, user engagement is reinforced. The more active and the earlier users are engaged, the more likely it is to adequately address the problems that may emerge (Carter and Bélanger, 2005; Panagiotopoulos et al., 2012). Users can also put pressure to other stakeholders to meet their requirements and provide services of high value.

When users are reluctant to adopt a system, exhibit resistance or refuse to do so, small wins can help as a way to promote the benefits of the implemented projects. In this way, users recognize their potential and value, and gain trust towards the forthcoming change (Al-Hujran et al., 2015).

Even though the significance of dialogue and public consultations should not be underestimated, they often end up being a legitimate excuse for deliberate delay that undermines the use of a system that challenges the status quo. Therefore, in certain cases where the impact of other measures is limited, or when a radical change is planned, enforcement may be the most appropriate and effective road to a successful implementation (Chan et al., 2011). Enforcement refers to the final, intended outcome with a clear and foreseen end. It does not imply that the whole process is strictly defined in detail in all the related dimensions (i.e. without excluding alternative poles of duality tensions). For instance, in order to address resistance against Diavgeia, but also put pressure to all stakeholders to help solve the emerging problems, it was decided that unless an administrative act is published on the platform, it is not considered to be in effect.

5.4 Framework of e-government enablers

The analysis of the three poles reveals that they are strongly interdependent. Consistent with Boonstra et al. (2017), no single pole in each dualistic tension applies in good practice in such a complex context. In addition, these dualistic tensions or dilemmas are highly interlinked. A decision in a dilemma influences that following tension and it should not be dealt with in isolation. Instead, a combination of

them seems to be beneficial, or even necessary, to lead to a successful implementation. This is an ongoing process, where various elements change among different levels or at different times. In any case, tensions need to get addressed once they emerge.

We therefore propose a framework, where top-down pressures, agency ownership and user engagement constitute a virtuous circle with interlinked factors (Figure 1). Top-down pressures can enable agency ownership and user engagement through empowerment and enforcement respectively. Similarly, agency ownership can facilitate user engagement when a flexible and staged development approach is adopted. Expanding the scope of this framework, the good practices of e-government in Greece, such as those we described can also operate as a "stage development" and "small win" towards the required change in the culture and the operation of public administration, that triggers further agency ownership and user engagement of extended e-government services.

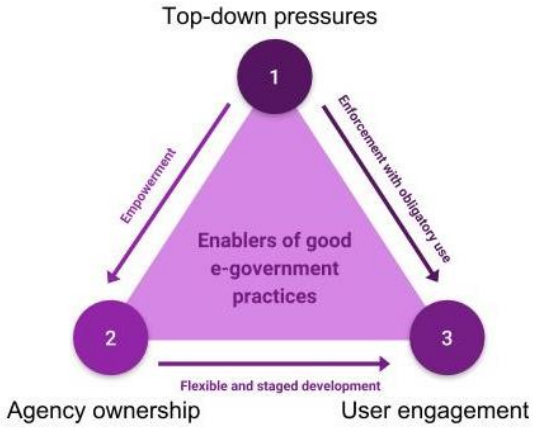

Figure 1. Enablers of good e-government practices in a disorganized context.

Finally, we should note that the presented analysis applies to a very particular and highly complex national context. Consequently, further research is necessary to explore whether and how they may apply in different national contexts. Nonetheless, the proposed framework can help distinguish active enablers in various settings and could be expanded or adapted appropriately as further empirical material from different contexts of e-government implementation are studied. In the same vein, applying different criteria to evaluate e-government projects would result in identifying different exemplars of e-government development and adoption. Therefore, research that employs different definitions of what is considered good practice (i.e., studies that go beyond projects adopted by their intended users, as those we considered in this paper) may lead to the identification of different enablers of such good practices.

To conclude, this paper reviewed a number of enabling practices for e-government, through an in-depth study of four nation-wide IT projects recently adopted in Greece. We explained that Greece constitutes a particular context for the study of e-government, primarily because of its administrative culture on the one hand and the ongoing financial crisis on the other, which both influence the conditions that shape IT project development in the public sector. Against a culture that is traditionally characterized by slow and fragmented development, scepticism and resistance in adoption, we found evidence of good practices that facilitate e-government. Although Greece is among the laggards of e-government adoption in the EU, the ongoing research in the field of e-government suggests that there is ample scope for improvement in IT project development and use, in both developed and developing national contexts. We therefore hope that the presented framework will contribute to the debate on how better e-government services may be developed and adopted.

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